



MAINE
DEC 11 1989

John R. McKernan, Jr.
Governor

C. Edwin Meadows
Commissioner

DEPARTMENT OF CONSERVATION

December 6, 1989

James P. Linnane
Field Representative
Forest Pest Management
Forestry Sciences Laboratory
PO Box 640
Durham, NH 03824

Dear Jim:

Insect and disease problems encountered over the past year continued to provide challenges and frustrations as well as surprises, and as usual we ended up with a few potential bad problems and some welcome relief from others. Hardwood declines and softwood bark beetles probably pose the most serious and widespread threats to our resources although some specific pests such as gypsy moth, hemlock looper and shoestring root rot are certainly of major concern. Christmas tree growers continue to suffer losses to various pests and physiological problems. Some of our standard problems of the past such as spruce budworm, saddled prominent and scleroderris canker have either dropped to or remain at very low levels while the hemlock woolly adelgid has not yet reached us. Gypsy moth seemed to under go a resurgence while the late season hardwood defoliator complex diminished in intensity. Pinewood nematode continues to show up in new areas as our surveys continue. The European larch canker was found in one more town in 1989 which will likely add four towns to the quarantine area. The newcomer to the problem scene in 1989 was the hemlock looper. Others such as white pine weevil, white pine blister rust, various hardwood defoliation and a number of foliage diseases continued at roughly 1988 levels.

Worksheets are attached for the more significant problems, especially those requested by Pete Orr. Our seasonal conditions reports included discussion of other problems as well. A seasonal summary report of all of our forest pest conditions will be available early in 1990. There are several problems listed on Pete's request which we do not experience in Maine such as: dogwood anthracnose, oak wilt, ash yellows and hemlock woolly adelgid. Although the jack pine budworm does occur here, it is infrequent and causes no damage to our meager jack pine resource.

Should you have further questions on any of the pest problems summarized or others, give me a call or contact Dick Dearborn.

Sincerely,

Dave Struble
State Entomologist

DS:bab
Enclosures

PEST CONDITIONS REPORT WORK SHEET
MAINE

PEST - (COMMON NAME): Arborvitae Leaf Miner

(SPECIFIC NAME): *Argyresthia thuella*; *A. freyella*; *A. aureoargentella*;
& *Recurvaria thujaella*

HOST: Northern White Cedar-- *Thuja occidentalis*

PRESENT CONDITION: Endemic statewide except Plymouth, Freedom, Detroit area in central area. Palmyra, Cornville, & Newport also rising sharply. Populations rising generally.

AREA - TOTAL ACRES: Unknown

LOCATION: Central, Eastern & Northern Maine

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR

INFECTION; DEFINE CLASSES: Populations appeared to be up generally throughout the infested areas in 1989 with a few exceptions. Damage again heavy to severe in Washington & Hancock counties.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR

\$ ESTIMATES: Adequate data has not been taken to estimate losses. Growth losses are apparently high in many areas. Arborvitae is currently underutilized in the state.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND

EXPECTATIONS FOR NEXT YEAR: Increased in certain areas, endemic in others. Populations appear to be increasing.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

None in 1989 and none planned for 1990

ADDITIONAL COMMENTS: Due to scattered pattern of stands, exact or even approximate acreage estimates are difficult.

As the species increases in value, an increased emphasis must be placed on this pest due to the heavy growth loss and potential tree mortality.

1989 Arborvitae Leaf Miner Summary

Location	# of Live Larvae Per 3" Twig-1989	# of Live Larvae Per 3" Twig-1988	<u>Increase</u> <u>Decrease</u>
Palmyra	2.66	0.54	+2.12
Belgrade	3.46	4.60	-1.14
Plymouth	10.84	1.81	+9.03
Cornville	3.35	1.19	+2.16
Newport	3.81	1.16	+2.65
Freedom	6.01	0.46	+5.55
Detroit	6.80	1.93	+4.87
Whiting	3.24	3.69	-0.45
Trescott	2.26	1.61	+0.65
Edmunds	2.77	2.52	+0.25
Ludlow	0.22	0.32	-0.10
Moro	0.37	1.42	-1.05
Nashville	0.19	0.09	+0.10
Connor	0.41	0.21	+0.20
T9-R5	0.26	0.10	+0.16
Winterville	0.50	0.14	+0.36
Orient	1.13	2.25	-1.12
Macwahoc	3.29	4.01	-0.72
Little Squaw	0.18	****	****
Seboomook	0.03	****	****

**** = New in 1989

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • Balsam Gall Midge

(SPECIFIC NAME): Paradiplosis tumifex Gagne

HOST: Balsam Fir

PRESENT CONDITION:

AREA - TOTAL ACRES: Undetermined

LOCATION: Statewide

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Numerous plantations throughout the State
sustained moderate to severe defoliation in 1989.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: While this species has not caused tree mortality, defoliation
by this insect can have a significant impact on the marketing of Christmas trees
and wreath brush.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Balsam gall midge populations are strongly cyclic. A
steady increase in the area of infestation and intensity since 1986, would indicate the
likelihood of high populations in 1990.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: No state projects. Many
Christmas tree producers treated for this insect in 1989. The predominant
insecticide used was diazinon.

ADDITIONAL COMMENTS:

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): •Balsam Poplar Leafminer

(SPECIFIC NAME): ? Lyonetia sp.

HOST: Balsam Poplar

PRESENT CONDITION:

AREA - TOTAL ACRES: 5,500 acres

LOCATION: Aroostook County

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Balsam poplar throughout the area
mapped exhibited very red foliage readily detectable from the air.

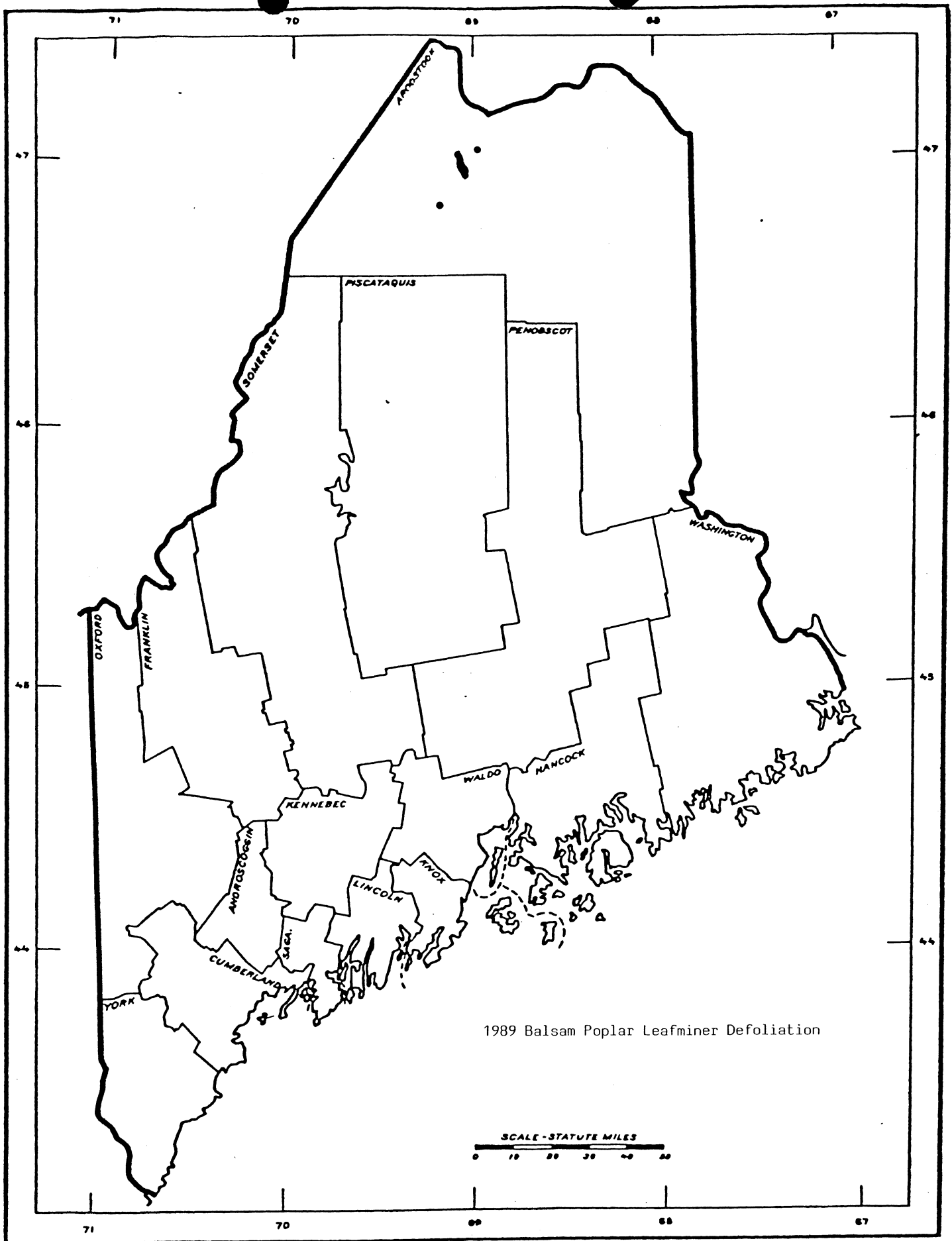
LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: The area infested roughly stable in size in
1989 at 1987 levels although populations and damage decreased somewhat in
intensity.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS: We are in the process of securing an identification for this species.

MAINE



1989 Balsam Poplar Leafminer Defoliation

SCALE - STATUTE MILES

0 10 20 30 40 50

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): •Balsam Fir Shootboring Sawfly

(SPECIFIC NAME): Pleroneura brunneicornis Roh.

HOST: Balsam Fir

PRESENT CONDITION:

AREA - TOTAL ACRES: None

LOCATION: Statewide

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Locally heavy in southern Maine

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Some Christmas tree growers feel that this is a serious
problem and have reported significant reduction in grade. Others do not seem
to have a problem with this insect.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Up in 1989. We cannot predict the incidence of this
pest for 1990.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: Many individual attempts to
control this insect have met with varying success. Much more work on timing
and material selection needs to be done.

ADDITIONAL COMMENTS:

MAINE

PEST - (COMMON NAME): •Balsam Twig Aphid

(SPECIFIC NAME): Mindarus abietinus (Koch.)

HOST: Balsam Fir

PRESENT CONDITION:

AREA - TOTAL ACRES: Undetermined

LOCATION: Statewide

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Localized infestations reduced Christmas
tree grades and made wreath brush unmarketable in 1989.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Undetermined

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Populations are cyclic with localities. Statewide
trends appear to be increasing.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None by Maine Forest Service.
Many Christmas tree producers treated for this pest in 1989.

ADDITIONAL COMMENTS: An annual problem

1985 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • Balsam Woolly Adelgid

(SPECIFIC NAME): Adelges piceae (Ratz.) - Trunk Phase

HOST: Balsam Fir

PRESENT CONDITION:

AREA - TOTAL ACRES: 200 acres + of trunk phase reported

LOCATION: Primarily North Central Penobscot County (Medway, T4 R9 NWP)

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: For the first time in many years we have begun
to see tree boles heavily whitened by trunk phase of this pest. The gout phase
continues to be a problem especially in coastal areas.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None evident at this point from trunk phase. Losses are
probably high in coastal areas due to the gout phase.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Trunk phase of frequency of sightings increasing
Gout phase heavy and static

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS: Individual trees appeared to be outgrowing the gout phase when checked
in Washington County this season. The significance of this will be
checked out in 1990.

MAINE

PEST - (COMMON NAME): Birch Casebearer

(SPECIFIC NAME): Coleophora serratella

HOST: White Birch

PRESENT CONDITION:

AREA - TOTAL ACRES:

LOCATION: Northern 2/3 Maine

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Only scattered spots of noticeable
defoliation in Aroostook County and in the Rangeley area.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: See previous reports

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Statewide population stable - endemic. No appreciable
defoliation anticipated for 1990. Some scattered localized spots of defoliation are possible.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None conducted or
anticipated by MFS.

ADDITIONAL COMMENTS:

MAINE

PEST - (COMMON NAME): Birch Leafminer

(SPECIFIC NAME): Primarily Messa nana

HOST: Betula spp. esp. Paper or White birch

PRESENT CONDITION:

AREA - TOTAL ACRES: Variable throughout the area

LOCATION: South central Maine primarily

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Locally moderate browning - No mortality

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES:

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: The area involving populations of this species was
fairly analogous to that of 1987-88. Damage did not seem as severe in 1989 as in the
previous two years. This may possibly signal a downswing in populations.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS: The more common Fenusa pusilla of gray and white birch and Profenusa
thomsoni remained at relatively low populations again in 1989.

1. PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): Browntail Moth

(SPECIFIC NAME): Euproctis chrysorrhoea

HOST: Willow, Cherry, Roses, Rubus, Oaks

PRESENT CONDITION: Possibly increasing in intensity

AREA - TOTAL ACRES: 40+ acres known to be infested

LOCATION: Casco Bay Islands -- Long, Vaill, House & possibly others.

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: 2 - 3 acres of heavy to severe
defoliation on Long island. Vaill island has webs commonly over all of it. Others low
populations. 1 web found on mainland in spring of 1989 in Freeport.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: No tree mortality noted or expected.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Possible increase in mainland area infestation.
Heavier defoliation on islands and more area becoming infested.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: No regular control
undertaken. Visual survey of mainland areas undertaken and incidental webs found
are clipped. Pheromone trapping will be undertaken again in 1990.

ADDITIONAL COMMENTS:

10 pheromone traps were deployed in 1989 using new pheromone from USDA-Aphis. 5 of the
10 traps had catches of browntail moths. Highest count was 16 moths. We intend to
continue to utilize this pheromone and assist in its development and testing.

MAINE

PEST - (COMMON NAME): • Bruce Spanworm, Fall Cankerworm and Spring Cankerworm

(SPECIFIC NAME): Operophtera bruceata, Alsophila pometaria and Paleacrita vernata

HOST: Various deciduous hosts

PRESENT CONDITION: No defoliation reported for any of the three species.

AREA - TOTAL ACRES: 0

LOCATION:

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES:

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR \$ ESTIMATES: None

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND EXPECTATIONS FOR NEXT YEAR: Populations expected to remain low again in 1990.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS:

MAINE

PEST - (COMMON NAME): Eastern Larch Beetle

(SPECIFIC NAME): Dendroctonus simplex

HOST: Eastern Larch

PRESENT CONDITION:

AREA - TOTAL ACRES: Underdetermined

LOCATION: Statewide

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR

INFECTION; DEFINE CLASSES: An aerial survey of coastal larch (up to 20 miles inland) revealed 70% of the larch stands lying between the Kennebec River and Penobscot River had at least scattered dead individual larch within them. Of the larch stands east of the Penobscot, 60% had at least scattered dead larch or more within them.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Heavy losses of larch from this beetle have been sustained locally throughout the State. Lawn trees and young plantation and seed orchard trees have locally suffered an increasing impact from this pest.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND

EXPECTATIONS FOR NEXT YEAR: Mortality has been increasing and expanding throughout the State and is likely to continue to do so.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: Salvage has been recommended in many stands.

ADDITIONAL COMMENTS: Basal area loss will be available at a later date.

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): Fir Coneworm

(SPECIFIC NAME): Dioryctria abietivorella

HOST: Balsam Fir and White Spruce

PRESENT CONDITION:

AREA - TOTAL ACRES: 10 acres of balsam fir spotty in plantation and native white spruce

LOCATION: Aroostook County (balsam fir) and wherever white spruce is found

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES: Balsam fir buds and terminals mined-light-moderate damage to balsam fir Christmas trees on 10 acres adjacent to infested white spruce. Damage to white spruce limited to cones - often 10-15% infested.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR \$ ESTIMATES: As described

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND EXPECTATIONS FOR NEXT YEAR: Apparently up in 1989 over 1988 levels - no projected pops. for 1990.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS:

MAINE

PEST - (COMMON NAME): • Fall Webworm

(SPECIFIC NAME): Hyphantria cunea

HOST: Many deciduous hosts

PRESENT CONDITION:

AREA - TOTAL ACRES: Locally very heavy populations again in 1989

LOCATION: Statewide but heaviest in central and southwestern Maine

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Still primarily an aesthetic problem
although feeding and webbing was heavy in 1989 for the second successive year.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Aesthetic damage and possibly some partial branch and twig
mortality.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Populations appeared to decline slightly in 1989
overall. Future trend not known.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS:

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): Forest Tent Caterpillar

(SPECIFIC NAME): Malacosoma disstria

HOST: Primarily Poplar

PRESENT CONDITION:

AREA - TOTAL ACRES: No known areas of noticeable defoliation in 1989

LOCATION:

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Populations generally low - no known
areas of defoliation

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: No recent losses

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Not known - appear to be stable; moth catches during
1989 at roughly 1988 levels

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS:

MAINE

PEST - (COMMON NAME): Gypsy Moth

(SPECIFIC NAME): Lymantria dispar

HOST: Oaks and other hardwoods

PRESENT CONDITION:

AREA - TOTAL ACRES: 34,286 acres detected in aerial surveys.

LOCATION: Southern and eastern Maine

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: 20,020 acres of light (less than 30%)
defoliation. 14,266 acres of moderate to severe (over 30%) defoliation.
No known mortality.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None known

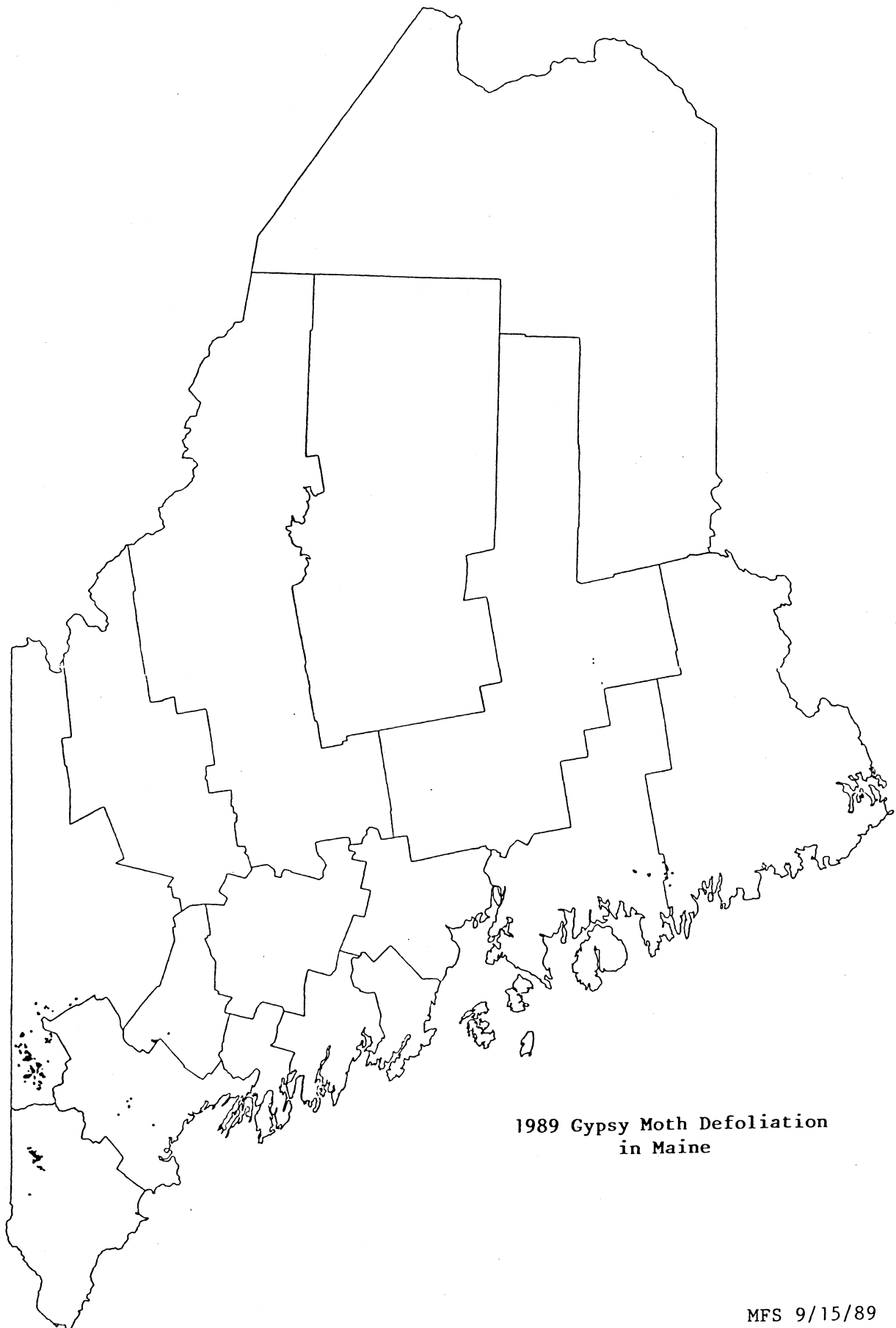
TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: 100 acres were defoliated in 1988 which rose to
34,286 acres in 1989 and the trend is expected to continue to increase in 1990. Overwintering
egg mass counts indicate a very significant population increase will occur barring heavy winter
mortality of eggs.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

Some local projects were conducted in 1989 with carbaryl or B.T. at a cost of
approximately \$85-100 per acre. The total acreage is not unknown. No state projects
were conducted in 1989 or are planned for 1990.

ADDITIONAL COMMENTS:

The egg parasites, Ooencyrtus kuwanoi was noted to be very active and easy to find on gypsy
moth egg masses at a number of sites checked in southwestern and central Maine in November,
1989.



1989 Gypsy Moth Defoliation
in Maine

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • Late Season Hardwood Defoliator Complex

(SPECIFIC NAME): 25 + species - see list

HOST: Various hardwoods but especially beech, sugar maple and the birches

PRESENT CONDITION:

AREA - TOTAL ACRES: 29,500 acres of moderate-heavy defoliation; trace-light defoliation where the hosts occur over roughly 3,000,000 acres (see attached map).

LOCATION:

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES: See above

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR \$ ESTIMATES: None recorded

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND EXPECTATIONS FOR NEXT YEAR: Populations down strikingly from more than 120,000 acres of moderate to heavy defoliation in 1988 to approximately 29,500 acres in 1989. Further declines expected in 1990.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS:

Hardwood Defoliator Complex 1989

Significant Numbers (i.e., noticeably present and destructive in most areas checked)

Birch Sawfly, Arge pectoralis - more widespread but down in numbers in 1989
Orangehumped mapleworm, Symmerista leucitys
Spearmarked Black, Rheumaptera hastata, birch only
Variable Oakleaf Caterpillar, Lochmaeus manteo

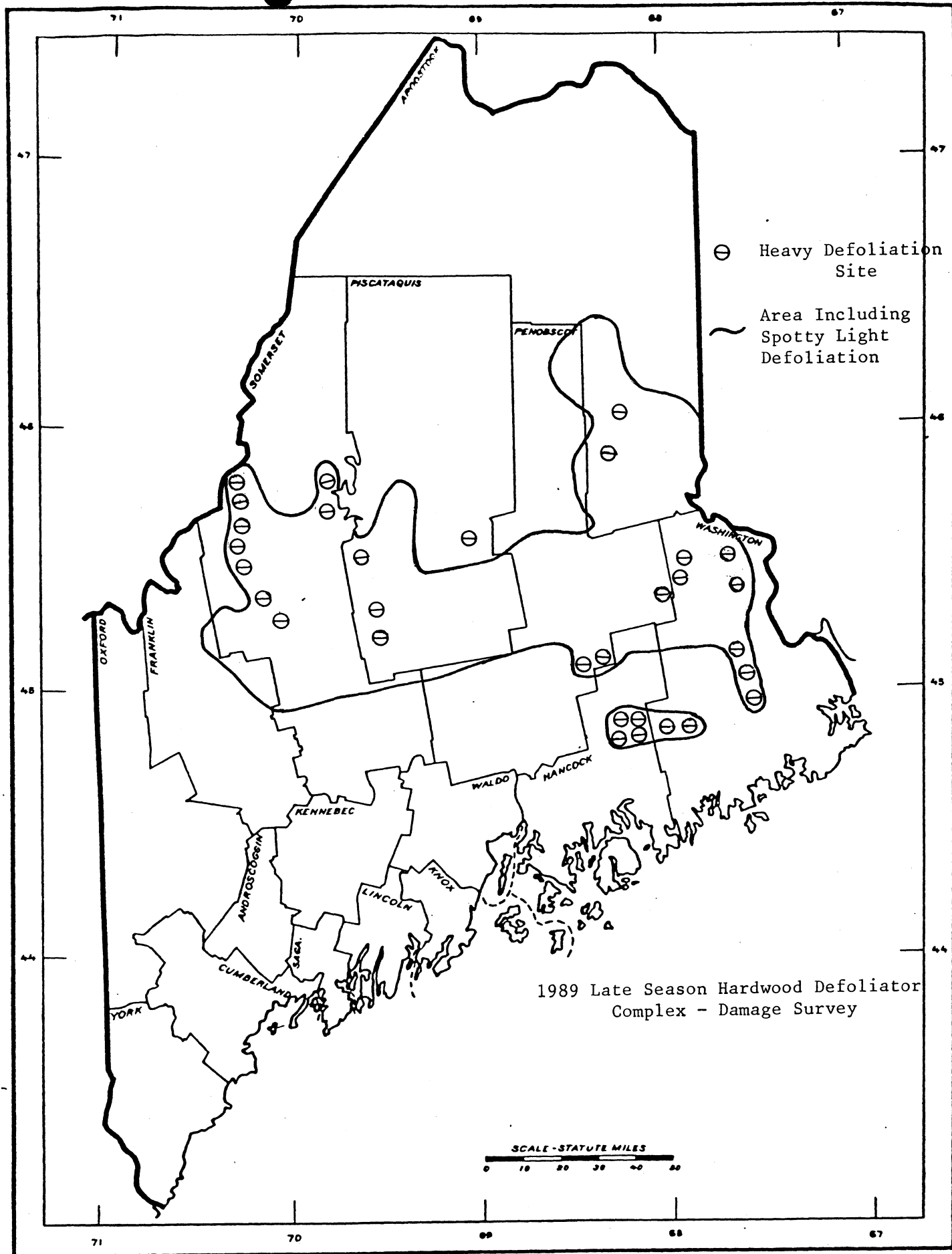
Noticeable Throughout (i.e., almost always present in low but detectable numbers)

American Dagger Moth, Acronicta americana
Blackheaded Birch Leaf Folder, ? Accleris logiana
Flat Leaf tiers, Psilocorsis spp.
Lacecapped Caterpillar, Oligocentria lignicolor
Spotted Tussock, Lophocampa maculata
Unicorn Caterpillar, Schizura ipomoeae
Unicorn Caterpillar, S. unicornis
Noctuid, Acronicta sp. - locally high numbers

Scattered and Infrequent (but with multiple records)

Birch Sawfly, Dimorphopteryx sp.
Hickory Tussock, Lophocampa caryae
Luna Moth, Actias luna - up significantly in 1989 but local
Pale Tussock, Halysidota tessellaris
Polyphemus moth, Antheraea polyphemus
Prominent, Heterocampa biundata
Prominent, Het. umbrata
Redhumped Oakworm, Symmerista canicosta
Slug Moth Caterpillars
Sphinx Moths, Paonias spp. and Smerinthus sp.
Webworms, Tetralopha spp.
Yellownecked Caterpillar, Datana ministra
Zebra-marked Caterpillar, ? Acronicta retardata, Maple only
Yellowlined Caterpillar, Nadata gibbosa
Cleft-headed Spanworm, Biston betularia cognataria

MAINE



MAINE

PEST - (COMMON NAME): Hemlock Looper

(SPECIFIC NAME): Lambdina fiscelaria

HOST: Hemlock, Balsam Fir, White Birch , etc.

PRESENT CONDITION:

AREA - TOTAL ACRES: 200 acres of what appears to be severe defoliation by this pest. Several hundred acres of trace to light and possibly moderate defoliation

LOCATION: Heaviest populations appear to be have also been reported.
in the southern half of the State.

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES:

See Above

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES:

Losses may be high in any areas of heavy defoliation

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR:

Populations are up strikingly in 1989 from 1988 levels and are expected
to rise further in 1990

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

Salvage mostly

ADDITIONAL COMMENTS:

Surveys for this pest will be expanded this winter and next spring
and summer.

1. PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): Hemlock Woolly Adelgid

(SPECIFIC NAME): Adelges tsugae

HOST: Eastern Hemlock

PRESENT CONDITION:

AREA - TOTAL ACRES: None

LOCATION: No known infestations anywhere in Maine

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: No problem to date. None found in Maine
so far. Potential area includes southwestern and coastal Maine

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND

EXPECTATIONS FOR NEXT YEAR: After being found in Massachusetts in 1989, it
brings the likelihood of Maine receiving an infestation even closer. Winter temps.
may be a factor limiting incidence.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: MFS and Me. Dept of
Agriculture have established a quarantine on importation of Hemlock products from the
infested areas. Survey and detection efforts are in progress.

ADDITIONAL COMMENTS:

Relative to HWA, top priority for the northern tier New England States would be a
definition of lethal low temperatures/survivability. At the minimum, a rather
simplistic evaluation of time and temp. in 5-10 degree intervals would be well
received this year.

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • Jack Pine Sawfly

(SPECIFIC NAME): Neodiprion pratti banksianae Roh.

HOST: Jack Pine

PRESENT CONDITION:

AREA - TOTAL ACRES: Several hundred acres - not mapped

LOCATION: Coastal Hancock and Washington Counties from Steuben to Mt. Desert

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Jack pine over 100 acres ± on Dyer Neck
in Steuben exhibited moderate to severe defoliation.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None noted

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Up strikingly in 1989 from 1988 levels

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS: This problem is more likely to remain aesthetic as the jack pine resource
in these areas is not destined as a forest product.

MAINE

PEST - (COMMON NAME): • Maple Leafroller

(SPECIFIC NAME): Sparganothis acerivorana (MacKay)

HOST: Red Maple

PRESENT CONDITION:

AREA - TOTAL ACRES: 23,300 acres

LOCATION: Southern Hancock County

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Defoliation was detectable throughout
the 23,300 acres. Most areas showed 30-60% defoliation but hot spots
with over 75% defoliation did occur.

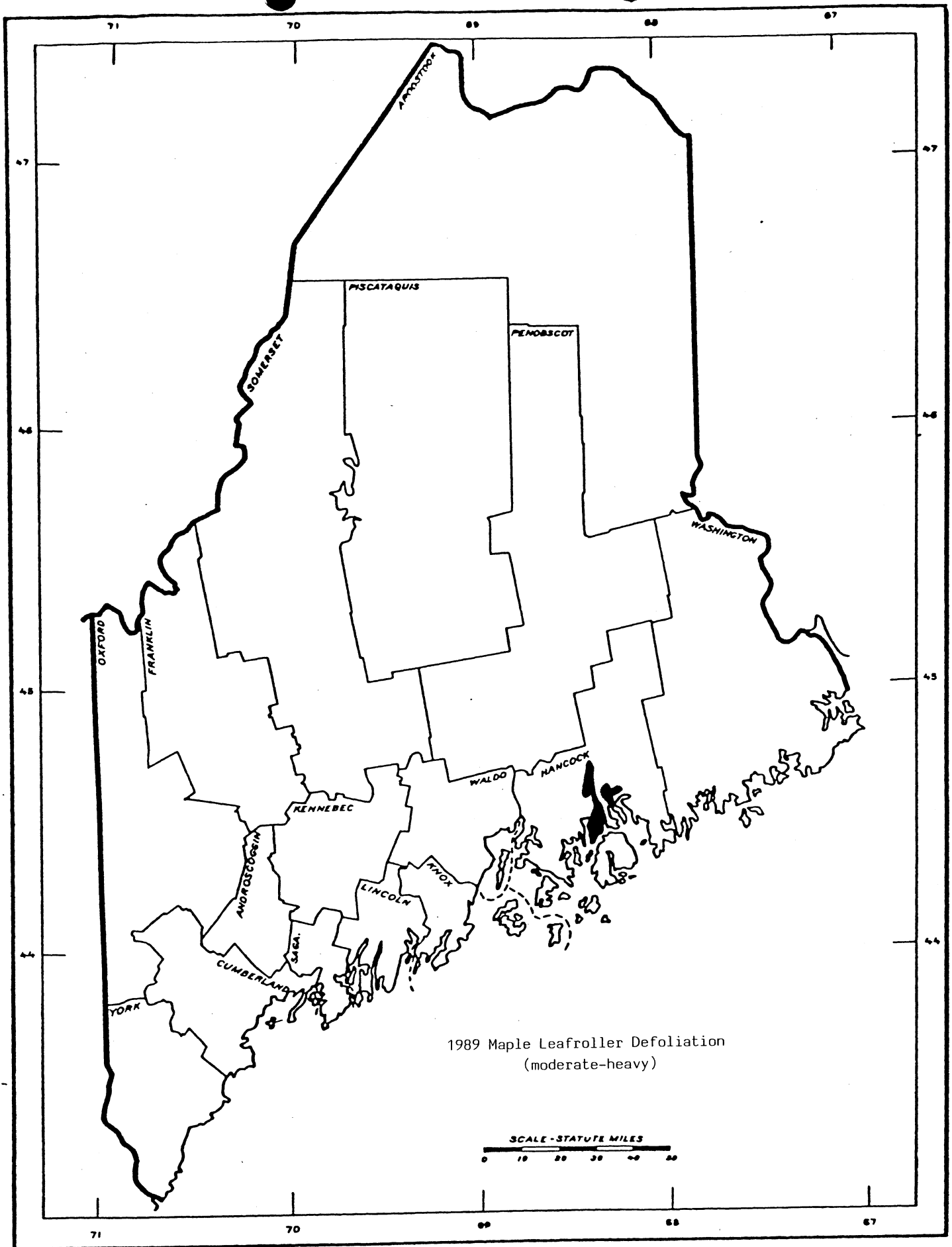
LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: No mortality noted

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: The area involved seemed to increase slightly in
1989 while populations and damage decreased in intensity.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS:

MAINE



MAINE

PEST - (COMMON NAME): Oystershell Scale

(SPECIFIC NAME): Lepidosaphes ulmi

HOST: Primarily Beech

PRESENT CONDITION:

AREA - TOTAL ACRES: Past damage noticeable on 100+ townships across the central band of the State.

LOCATION:

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES: Light to moderate damage in more heavily infested areas in 1989.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR \$ ESTIMATES: Light branch and twig mortality throughout. Heavy understory mortality in some previously infested stands.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND EXPECTATIONS FOR NEXT YEAR: Not sure but expected to drop generally

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS:

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): Pear Thrips

(SPECIFIC NAME): Taeniothrips inconsequens

HOST: Sugar Maple

PRESENT CONDITION:

AREA - TOTAL ACRES:

LOCATION: Statewide

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: No visible damage

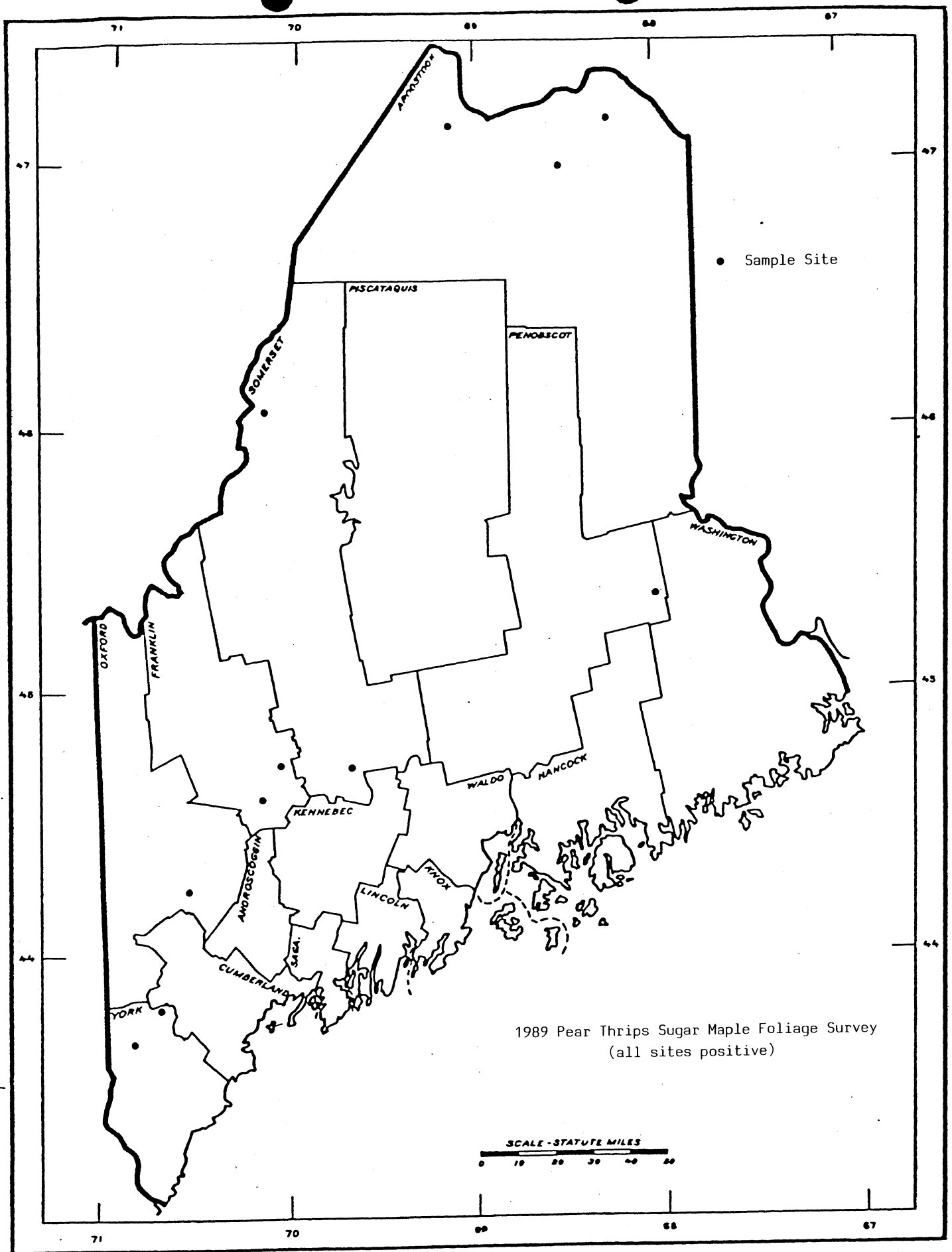
LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Do not have basis for comparison

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS: We will be participating in coordinated survey programs to try and
determine population trends.

MAINE



1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • Pine Leaf Adelgid

(SPECIFIC NAME): Pineus pinifoliae

HOST: White Pine and Red and Black Spruce

PRESENT CONDITION:

AREA - TOTAL ACRES: Spotty

LOCATION: South Central and eastern Maine primarily

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES: Damage levels to pine were down significantly in 1989. Only spotty areas of moderate browning were reported. Galls on spruce were also less abundant.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR \$ ESTIMATES: Although damage to white pine in some areas was heavy in 1987-88, no tree mortality was reported from these areas in 1989.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND EXPECTATIONS FOR NEXT YEAR: Populations appear to be declining rapidly from the very high levels of 1987-88.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS:

1985 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • A Red Pine Bark Miner

(SPECIFIC NAME): Cydia inopiosa

HOST: Red Pine

PRESENT CONDITION:

AREA - TOTAL ACRES: 100 acres

LOCATION: West Central Maine

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: 100 acres infested

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: No mortality. Infestations of this "nuisance" pest did result
in several thousand dollars worth of balled and burlap stock being refused entry
into other States and thereby loss of revenue.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: This pest was seen in Maine for the first time.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS: See attached sheet

A Red Pine Bark Miner
Cydia inopiosa

In May of 1989 a number of reports of what appeared to be "bark beetle" activity on the boles of 6-10 foot tall plantation red pine were received at the Maine Forest Service I & D lab. The areas involved ranged from Kingfield to Sangerville and south to Newport and included more than 100 acres of stock potentially destined for balled and burlap sales. The first sample brought in included signs of activity but no insects. On May 31, two of the areas in Sangerville and Newport were checked and it became evident that the insect involved was lepidopterous. Material from the larger and more heavily infested plantation on the Libby Hill Rd. in Newport was collected for rearing. On June 14 and 16 tiny moths emerged from the sample and on June 20 more material was collected for rearing. A total of 15 moths of Cydia inopiosa and several parasites were reared through July 2. Larvae, pupae and pupal cases were collected as well.

As this species had not been collected in Maine before and there were very few reports of its habits available, the plantation in Newport was studied more closely. Over 75% of the trees in this plantation seemed to be affected to one degree or another. In some more heavily infested pockets there were 30 or more activity sites noted on each tree bole. Activity sites were visible as small piles of reddish, sawdust-like material extruded by larvae from the galleries. Larvae were tiny light colored caterpillars which fed beneath bark flakes in the outer bark. Bark was peeled from a number of trees and in no case did the larvae bore into or through the cambium layer. Some larvae seemed to move from one site to a new one before pupating. Pupation seemed to occur either within the galleries or partially exposed (pupa sticking out of the bark).

This species seems to fall in the category of nuisance pest more than anything else and no serious damage to the red pine host was observed. Even the more heavily infested trees seemed to show no signs of injury. This is, however, our only year of experience with this insect.

So far as we know, this species occurs only on red pine and although not known from Maine, so far as we know it occurs in other parts of the range of red pine and is native to North America. Absence of records from Maine is probably due to lack of surveys for this species.

Richard G. Dearborn
August 3, 1989

MAINE

PEST - (COMMON NAME): • Saddled Prominent

(SPECIFIC NAME): Heterocampa guttivitta

HOST: Sugar Maple, etc.

PRESENT CONDITION:

AREA - TOTAL ACRES:

LOCATION: Southern half of the State monitored

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: No defoliation reported in 1989

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: The frequency of individual larval collections seemed to
be slightly higher in 1989 than in 1988. Moth catches in 1989 were at roughly 1988 levels.
Little change expected in 1990.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS:

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • Saratoga Spittlebug

(SPECIFIC NAME): Aphrophora saratogensis

HOST: Red Pine

PRESENT CONDITION:

AREA - TOTAL ACRES: Approximately 250 acres

LOCATION: Eastern Maine

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Damage was so severe on one 15 acre
plantation in T19 MD that it was essentially destroyed. Pockets of
mortality occurred in other areas.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Undetermined

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Remain locally heavy. In the future populations
should drop as tree size increases and less red pine is planted. This is a chronic
problem on some sites.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS:

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • Satin Moth

(SPECIFIC NAME): Leucoma salicis

HOST: Populus spp.

PRESENT CONDITION:

AREA - TOTAL ACRES:

LOCATION:

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Individual Populus deltoides around towns
and farms were heavily stripped in 1989. Several small clusters (less than
1 acre) of native Populus tremuloides in central were stripped.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Stable at low populations in 1989 and expected to
remain low in 1990.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: Private control only

ADDITIONAL COMMENTS:

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): · Spearmarked Black
(SPECIFIC NAME): Rheumaptera hastata

HOST: Birch

PRESENT CONDITION:

AREA - TOTAL ACRES: Not mapped

LOCATION: General throughout northern and north central Maine

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Although some trees have been severely
defoliated by this pest for the past 2-3 years, no mortality has been noted.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: See above

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Populations appeared to decline slightly in intensity
in 1989 although they did appear more widespread. Further declines are expected in 1990.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS:

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): SPRUCE BEETLE

(SPECIFIC NAME): DENDROCTONUS RUFIPENNIS

HOST: White Spruce, Red Spruce, occasionally Black Spruce

PRESENT CONDITION: The spread of spruce beetle through budworm damaged white and red spruce continues and accelerated sharply in 1989.

AREA - TOTAL ACRES: 7,500 acres of confirmed activity, many areas evaluated aerially showing symptoms.

LOCATION: Widespread in northwestern and north central Maine, predominantly near the Allagash and St. John Rivers. Spruce beetle is now common in west central and

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR northeastern Maine.

INFECTION; DEFINE CLASSES: 7,500 acres confirmed. Several large pockets have been identified aerially. Intensity and extent of attack rose sharply in 1989.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR

\$ ESTIMATES: 75% or more of large (>15" DBH) white spruce killed in infested areas. White spruce volumes in infested areas vary from 10% to 60% of volume. Many areas have been salvaged. Several new areas of affected red spruce have been located.

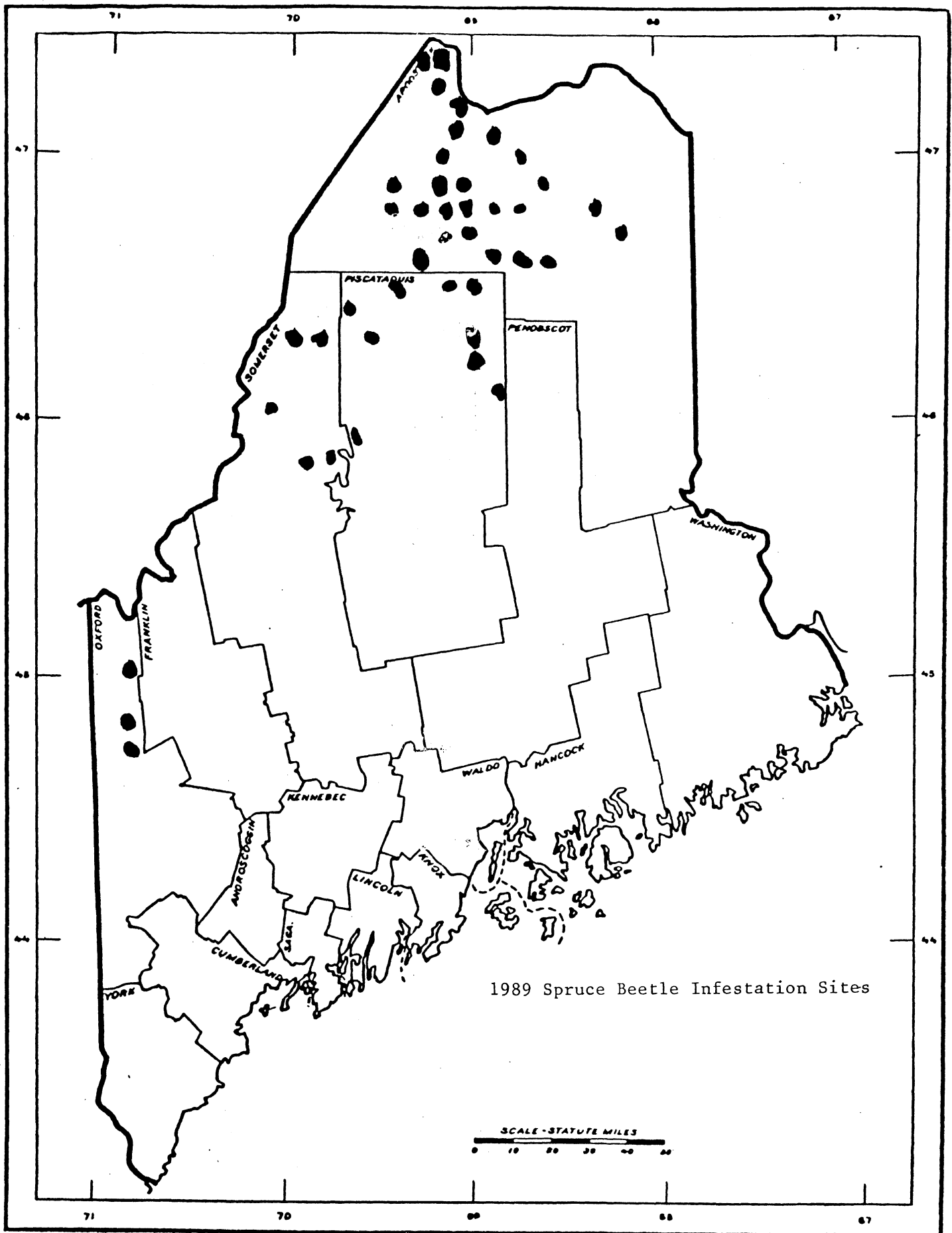
TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND

EXPECTATIONS FOR NEXT YEAR The size and severity of the infestation is increasing in known areas and new areas are being found with aerial surveys. Currently spruce beetle affected trees can be found through the spruce type in northern and central Maine.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: Salvage cutting. Some infested areas are located in wildlife protection zones (deer yards).

ADDITIONAL COMMENTS: An extensive aerial survey was conducted in the north central area of the state. Spruce beetle damage was recorded as either scattered attacked individuals or as heavily attacked areas. No attempt was made to actually map each site due to the scattered nature of the damage and because many heavily attacked trees show no symptoms visible from the air during the first season. These maps will be shared with affected landowners.

MAINE



1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • Spruce Budmoth

(SPECIFIC NAME): Zeiraphera canadensis

HOST: White spruce

PRESENT CONDITION:

AREA - TOTAL ACRES: 1,000 acres +

LOCATION: Aroostook, Penobscot, Piscataquis, Somerset and Washington Counties and locally elsewhere.

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES: Damage has resulted in growth suppression and stem deformation in many of the plantations checked.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR \$ ESTIMATES: In the more heavily infested plantations, many of the trees will not be worth harvesting if the problem continues.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND EXPECTATIONS FOR NEXT YEAR: Increasing in intensity in many plantations especially as they mature.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS:

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): SPRUCE BUDWORM

(SPECIFIC NAME): CHORISTONEURA FUMIFERANA (CLEM.)

HOST: Balsam Fir, Red Spruce, White Spruce, Black Spruce, Hemlock.

PRESENT CONDITION: The spruce budworm infestation in Maine remained at a very low level in 1989.

AREA - TOTAL ACRES: The defoliated area is estimated at 1,300 acres of moderate and 3,500 acres of light.

LOCATION: Budworm defoliation was restricted to southeastern Maine in southern Hancock and Washington counties. The towns involved are Waltham, Gouldsboro, Steuben, Columbia Falls, & Jonesboro

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES:

Moderate (30% to 50% Current Def.) = 1,300 acres.

Light (Less than 30% Def.) = 3,500 acres.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR

\$ ESTIMATES: New host mortality appears secondary in nature due to other agents.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND

EXPECTATIONS FOR NEXT YEAR: The trend since 1985 has been a sharp decline. Currently the decline is less apparent but the size and intensity of the infestation continues to decrease.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None Planned

ADDITIONAL COMMENTS: A network of pheromone traps in the northern 2/3's of the state caught very few moths, except in the southeast where low and moderate populations persist. Low number of moths (1 to 5 per trap) were caught in some locations in the northeast. Moths were not caught in the northeast in 1987 or 1988. Light traps generally caught low number of budworm moths statewide. More traps in the north caught moths in 1989 than in 1988 and the total number of moths caught increased in 1989. Even though the number of moths caught in pheromone and light traps increased in 1989, the differences can not be called significant. Budworm population status is not likely to change significantly in 1990.

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • White Pine Weevil

(SPECIFIC NAME): Pissodes strobi

HOST: White pine, Scotch pine and spruces

PRESENT CONDITION:

AREA - TOTAL ACRES: Undetermined

LOCATION: Statewide

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: This remains one of the most serious
insect pests of eastern white pine in Maine with heavy leader losses.
(greater than 10% of the stems affected).

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Degrade from future sawlogs to pulp is extremely detrimental
to the pine industry of Maine. Dollar value loss is not available.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Will remain at epidemic levels.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: Private landowners annually
treat more than 1,000 acres to control this pest. Efficacy trials were conducted
on the ground and aerially on approximately 30 acres in 1989 using Dimilin in a

ADDITIONAL COMMENTS: cooperation project between University of Maine and Maine Forest
Service personnel. Control was excellent with ground application
methods. Similar tests are planned for 1990.

MAINE

PEST - (COMMON NAME): Annosus Root Rot

(SPECIFIC NAME): Heterobasidion annosum

HOST: Red Pine, White Pine

PRESENT CONDITION:

AREA - TOTAL ACRES: est. 1,000, mostly red pine plantations

LOCATION: Statewide

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Light to moderate, with openings
in stands enlarging gradually.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Not quantified

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Gradually increasing

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: Stump treatment with
borax recommended to landowners.

ADDITIONAL COMMENTS:

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): Ash Dieback and Decline

(SPECIFIC NAME): Cause unknown

HOST: Brown Ash

PRESENT CONDITION:

AREA - TOTAL ACRES: 800 (estimated)

LOCATION: Aroostook County, especially along streams and wet areas

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES:

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Not quantified

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Much more severe in recent years, expected to
continue severe in 1990.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS: This problem first came to our attention this year, but advanced
stages of decline indicate it has been a problem for at least several
years.

MAINE

PEST - (COMMON NAME): Balsam Fir Needle Rusts

(SPECIFIC NAME): Various

HOST: Balsam Fir

PRESENT CONDITION: Needle rusts were present in many plantations in 1989. Damage was most noticeable in plantations which were small in size and broken up by or adjacent to wet runs.

AREA - TOTAL ACRES:

LOCATION: Statewide

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES:

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR \$ ESTIMATES: Marketability of plantation fir for Christmas trees not seriously affected this year.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND EXPECTATIONS FOR NEXT YEAR: Christmas tree growers are becoming increasingly aware of this problem and are systematically eradicating alternate host plants.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: Control of alternate hosts by growers has been effective. Glyphosate is the most commonly used herbicide to control alternate host species.

ADDITIONAL COMMENTS:

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • Beech Bark Disease

(SPECIFIC NAME): Cryptococcus fagisuga/Nectria coccinea complex

HOST: Beech

PRESENT CONDITION:

AREA - TOTAL ACRES: Throughout the resource

LOCATION: Statewide

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES: Various - Most stands exhibit trees at all levels of damage from clean to dead.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR \$ ESTIMATES: The beech resource in Maine has suffered serious and extensive losses, but no attempt has been made at this point to quantify these losses.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND EXPECTATIONS FOR NEXT YEAR: The frequency of sightings of beech heavily infested with scales seems to be increasing again and trees exhibiting heavy fruiting of nectria also seem to be more evident.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: See comments

ADDITIONAL COMMENTS: We have no developed survey for this pest in Maine upon which to base annual comparisons with certainty but there appears to be a new wave of activity crossing the State. The MFS is working with Dave Houston of the USFS to try and develop a beech management strategy. We are also interested in looking at the bionomics of the complex, especially the Nectria/Nematogonum (mycoparasite) relationship.

1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): Birch Dieback/Decline Syndrome
(SPECIFIC NAME):

HOST: White Birch (primarily)

PRESENT CONDITION:

AREA - TOTAL ACRES: 230 MM acres

LOCATION: 193 M - Rangeley Lakes
37 M - Coastal Washington County
(see map)

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY
DEFOLIATION OR INFECTION; DEFINE CLASSES:
Contiguous heavy (51-75%) defoliation in 1983 (Rangeley)
or 1985 (Washington County). Scattered defoliation
before and after these occurrences.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME
AND/OR \$ ESTIMATES: (See Additional Comments)

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW
YEARS AND EXPECTATIONS FOR NEXT YEAR: Original dieback
stabilized and was recovering in both the Rangeley and
Washington County areas. This pattern has been
overshadowed by increased twig dieback, especially in
the Rangeley Lakes area; apparently in response to
recent drouth stress.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS: Actual figures shown on attached table.

Sq. ft. D/Co ba/acre

		Moribund	Dead	M&D
Rangeley	In	3.6	4.3	7.9
	Out	1.3	2.0	3.3
Washington Co.	In	1.4	3.7	8.4
	Out	0	0	0

POST-DEFOLIATION WHITE BIRCH STAND CONDITION-
SPRING SURVEY RESULTS TO 1989

RANGELEY LAKES AREA
STOCKING ATTRIBUTES

YEAR	Basal Area (sq. Ft.)				Proportion White Birch to Total Basal Area	
	All Species	White Birch	D/CO-All Species	D/CO-White Birch	All Size	D/CO
<u>INSIDE</u>						
1985	148	95	104	79	.64	.76
1986	176	114	116	89	.65	.77
1987	170	110	111	86	.65	.77
1988	126	85	87	68	.67	.78
1989	154	88	101	72	.57	.71
<u>OUTSIDE</u>						
1985	173	96	108	74	.55	.69
1986	190	118	117	85	.62	.73
1987	189	99	123	78	.52	.63
1988	126	81	75	53	.64	.71
1989	152	85	103	67	.56	.65

WHITE BIRCH CROWN CONDITION ATTRIBUTES

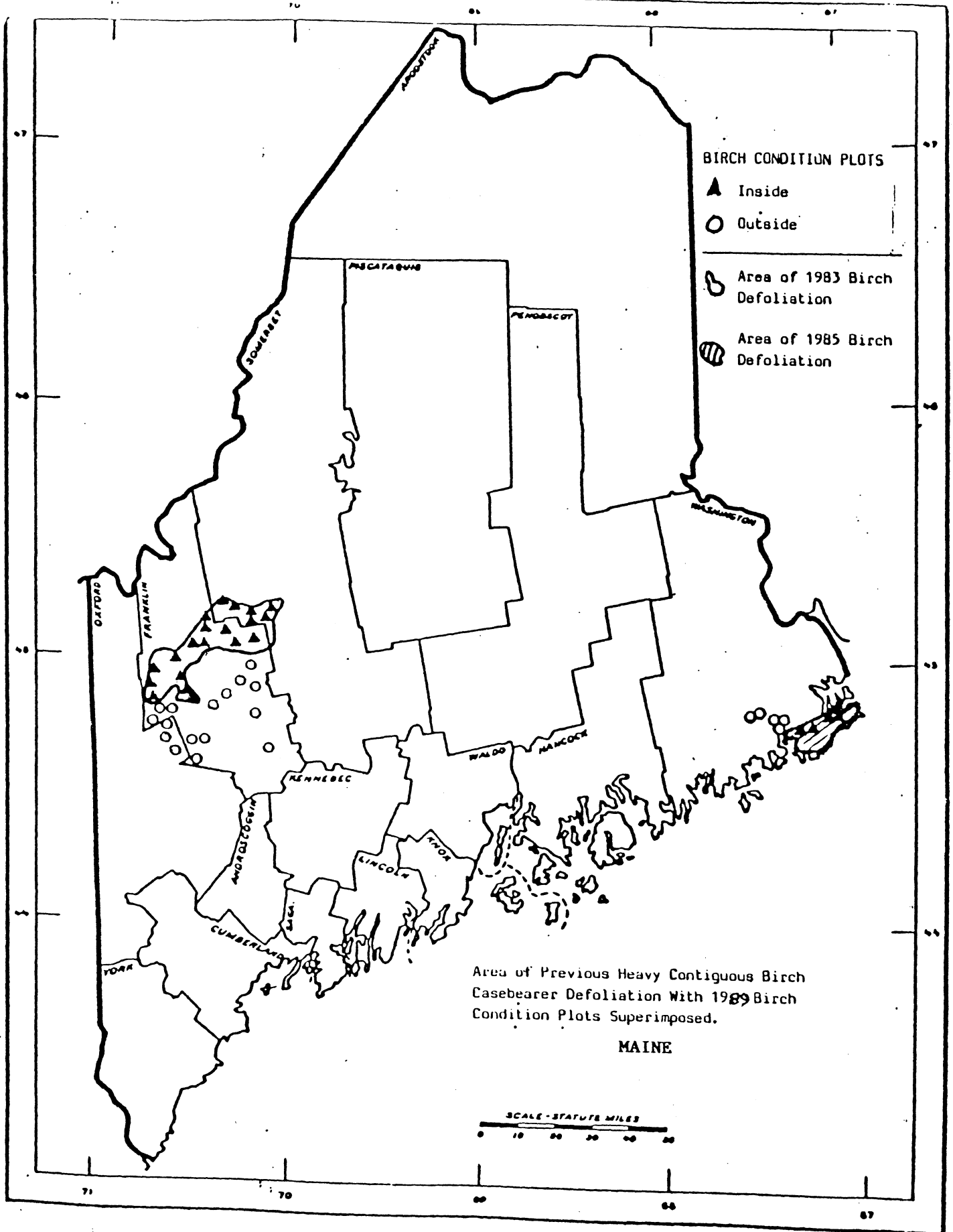
YEAR	Percentage by Class				
	healthy	dieback	moribund	new dead	snag
<u>INSIDE</u>					
1985	70	23	3	1	4
1986	49	44	3	3	4
1987	63	27	6	1	4
1988	63	30	4	0	3
1989	28	61	5	1	5
<u>OUTSIDE</u>					
1985	93	5	.4	.4	1
1986	85	14	.4	.3	1
1987	86	10	1	1	2
1988	76	19	1	0	4
1989	49	46	2	0	3

WASHINGTON COUNTY AREA
STOCKING ATTRIBUTES

YEAR	Basal Area (sq. Ft.)				Proportion White Birch to Total Basal Area	
	All Species	White Birch	D/CO-All Species	D/CO-White Birch	All Size	D/CO
<u>INSIDE</u>						
1986	138	113	92	79	.82	.86
1987	139	112	109	90	.81	.83
1988	114	88	84	70	.77	.83
1989	92	60	66	46	.65	.70
<u>OUTSIDE</u>						
1986	148	124	105	90	.84	.86
1987	155	122	103	84	.79	.82
1988	117	91	78	64	.78	.82
1989	86	40	52	28	.47	.58

WHITE BIRCH CROWN CONDITION ATTRIBUTES

YEAR	Percentage by Class				
	healthy	dieback	moribund	new dead	snag
<u>INSIDE</u>					
1986	65	28	2	4	2
1987	68	22	4	1	5
1988	33	56	6	1	5
1989	47	43	3	3	5
<u>OUTSIDE</u>					
1986	94	5	.5	0	.5
1987	98	1	0	.5	0
1988	76	23	0	0	1
1989	83	17	0	0	0



MAINE

PEST - (COMMON NAME): Christmas Tree Chlorosis

(SPECIFIC NAME): Manganese deficiency

HOST: Balsam Fir

PRESENT CONDITION:

AREA - TOTAL ACRES: 50 (est.)

LOCATION: China, Norridgewock, Searsmont

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Heavy (needle loss) - 5 acres
Moderate (needle chlorosis) - 45 acres

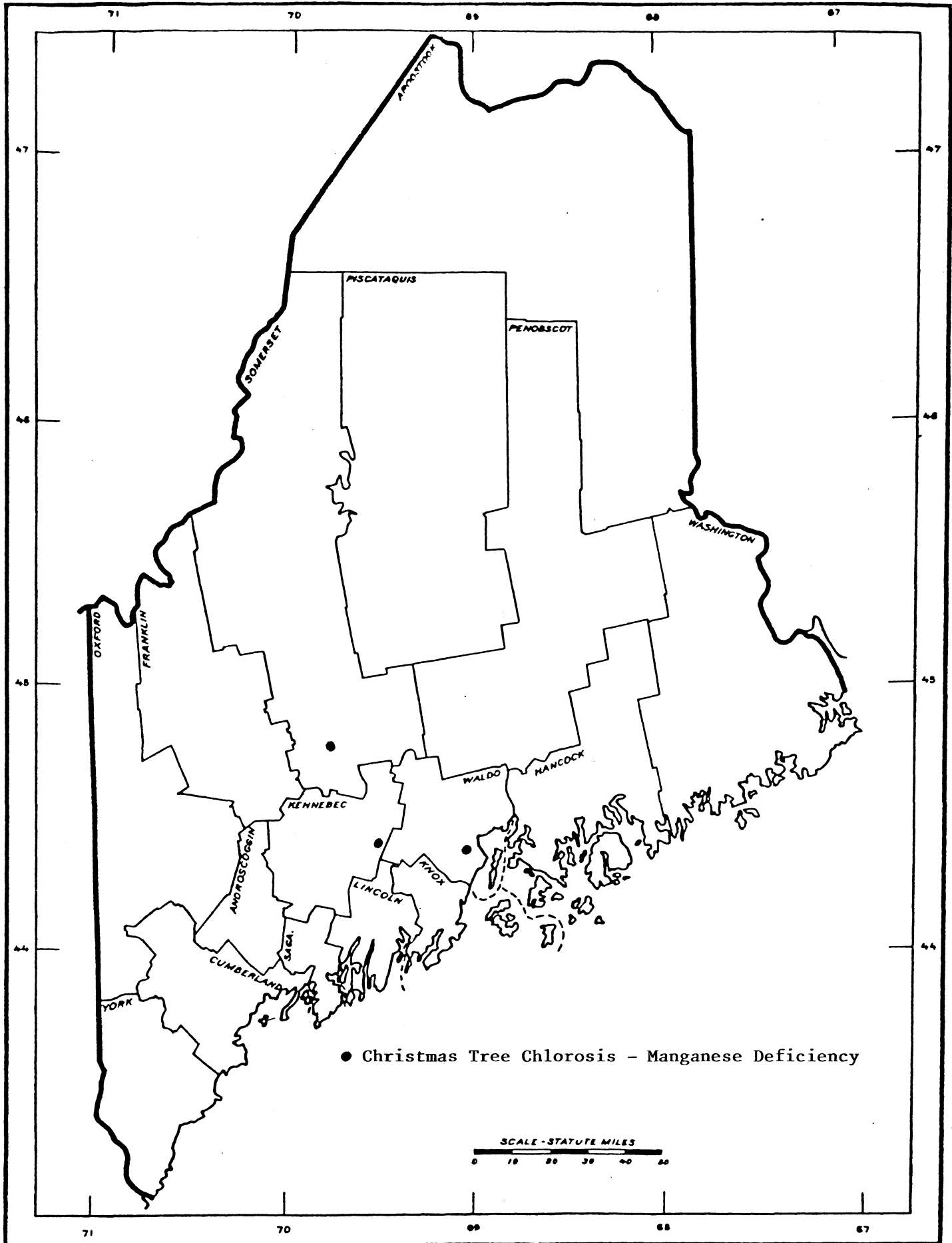
LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Unsaleable trees - \$50,000

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Increasing

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS: High soil pH is probably a contributing factor.

MAINE



MAINE

PEST - (COMMON NAME): Diplodia Tip Blight

(SPECIFIC NAME): Sphaeropsis sapinea

HOST: Austrian and Pitch Pines

PRESENT CONDITION:

AREA - TOTAL ACRES: 3

LOCATION: Union, Westbrook, Windham

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Light to heavy

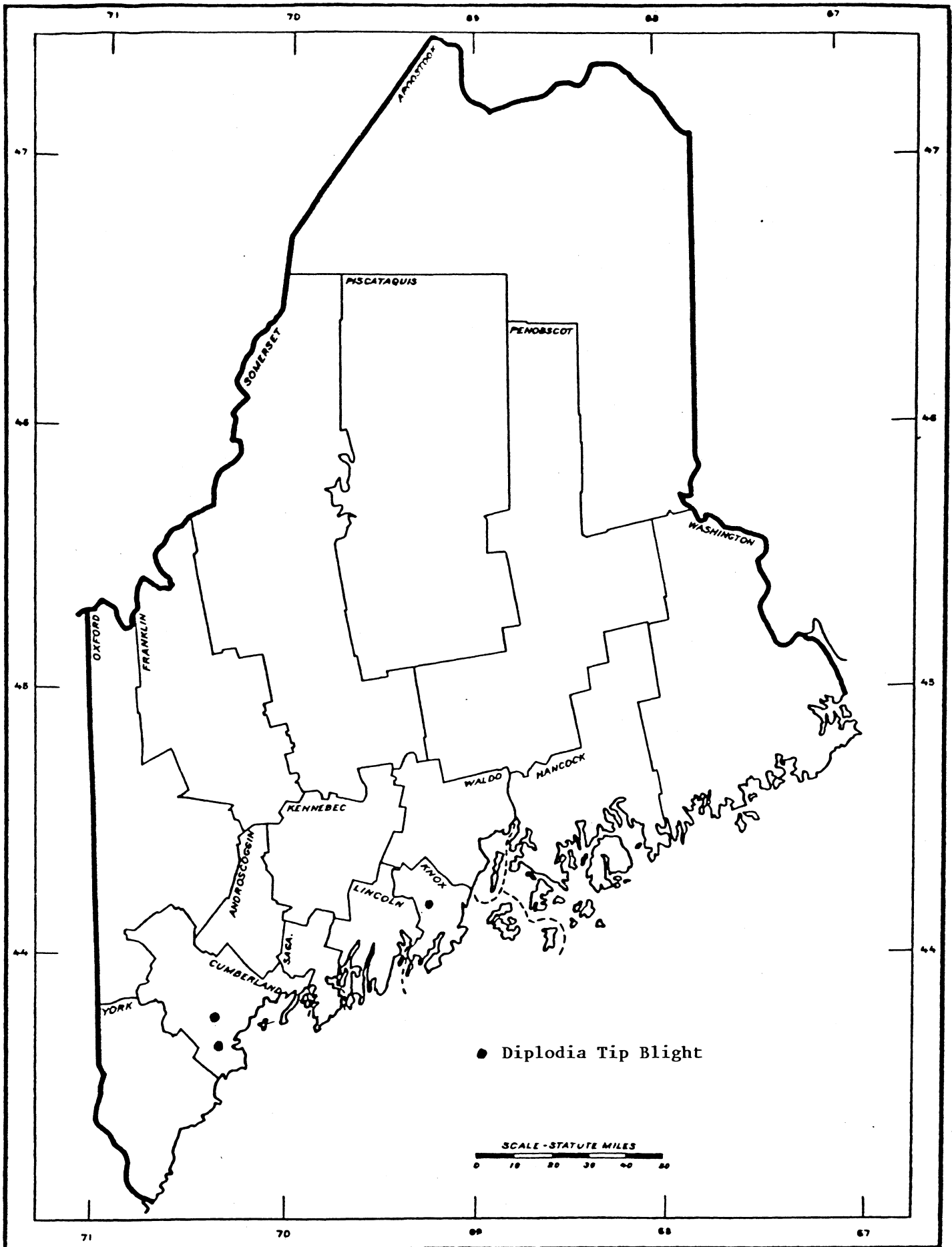
LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Static

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS:

MAINE



MAINE

PEST - (COMMON NAME): European Larch Canker

(SPECIFIC NAME): Lachnellula willkommii

HOST: Eastern & European Larch

PRESENT CONDITION: 1 new town found infested in 1989. This will add 4 towns to the quarantined area: Ellsworth, Lamoine, Hancock and Trenton

AREA - TOTAL ACRES: 6,500 (approximate)

LOCATION: Knox, Lincoln, Waldo and Washington counties, partially.

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES: At the two epicenters, Cutler-Jonesboro and Friendship, infection is heavy.; light to moderate elsewhere.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR \$ ESTIMATES: No mature tree loss has been observed, only sapling & pole sized trees. Volume estimates not available.

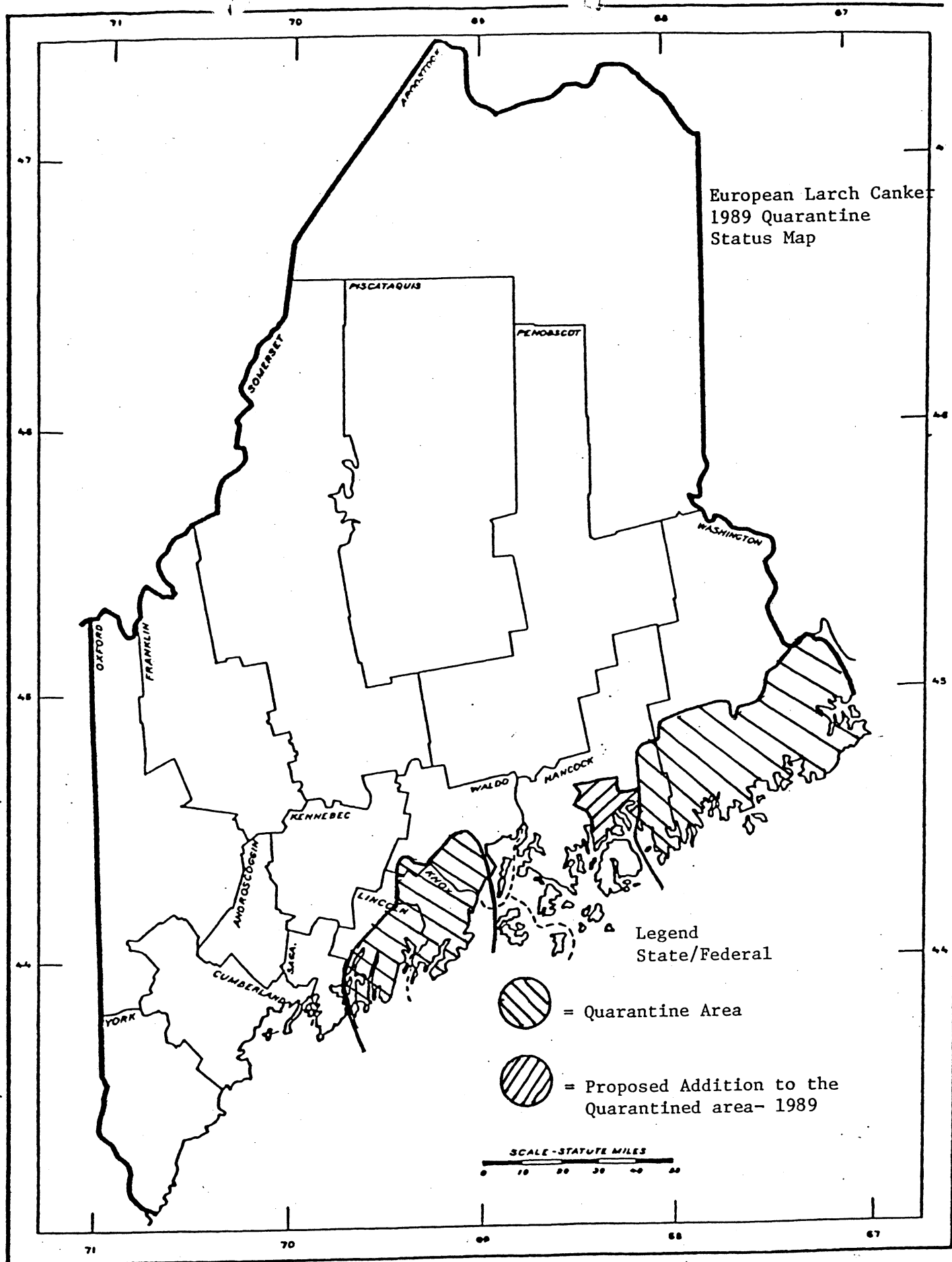
TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND EXPECTATIONS FOR NEXT YEAR: Since 1985 area has remained constant. 1 new town was found infected in 1989- Lamoine. This will add 4 towns to the quarantined area.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: State and Federal quarantine regulations in effect and are being enforced. Summer survey undertaken to determine spread. Plots also being set up to determine rate of spread.

ADDITIONAL COMMENTS:

Larch utilizers are under compliance agreements to receive wood from the quarantined area. 1 new town found infected in 1989, that of Lamoine. State has asked APHIS to quarantine towns of Lamoine, Ellsworth, Trenton and Hancock as buffer towns. This has not taken place yet.

MAINE



MAINE

PEST - (COMMON NAME): Hardwood Anthracnose

(SPECIFIC NAME): Discula sp.

HOST: Ash, maple, oak, aspen

PRESENT CONDITION:

AREA - TOTAL ACRES:

LOCATION: Statewide

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES:

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Severity dependent on rainfall each year.
No trend apparent.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS:

19 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • Pine - Pine Gall Rust

(SPECIFIC NAME): Endocronartium harknessii

HOST: Scots Pine and Jack Pine (Steuben only)

PRESENT CONDITION:

AREA - TOTAL ACRES: 50 ± Scots Pine
100 ± Jack Pine

LOCATION: T19 MD, Farmington, Mt. Vernon and Steuben (Jack Pine only)

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Light - 45; moderate - 5 (Scots Pine)
Moderate to severe - 100 acres (Jack Pine)

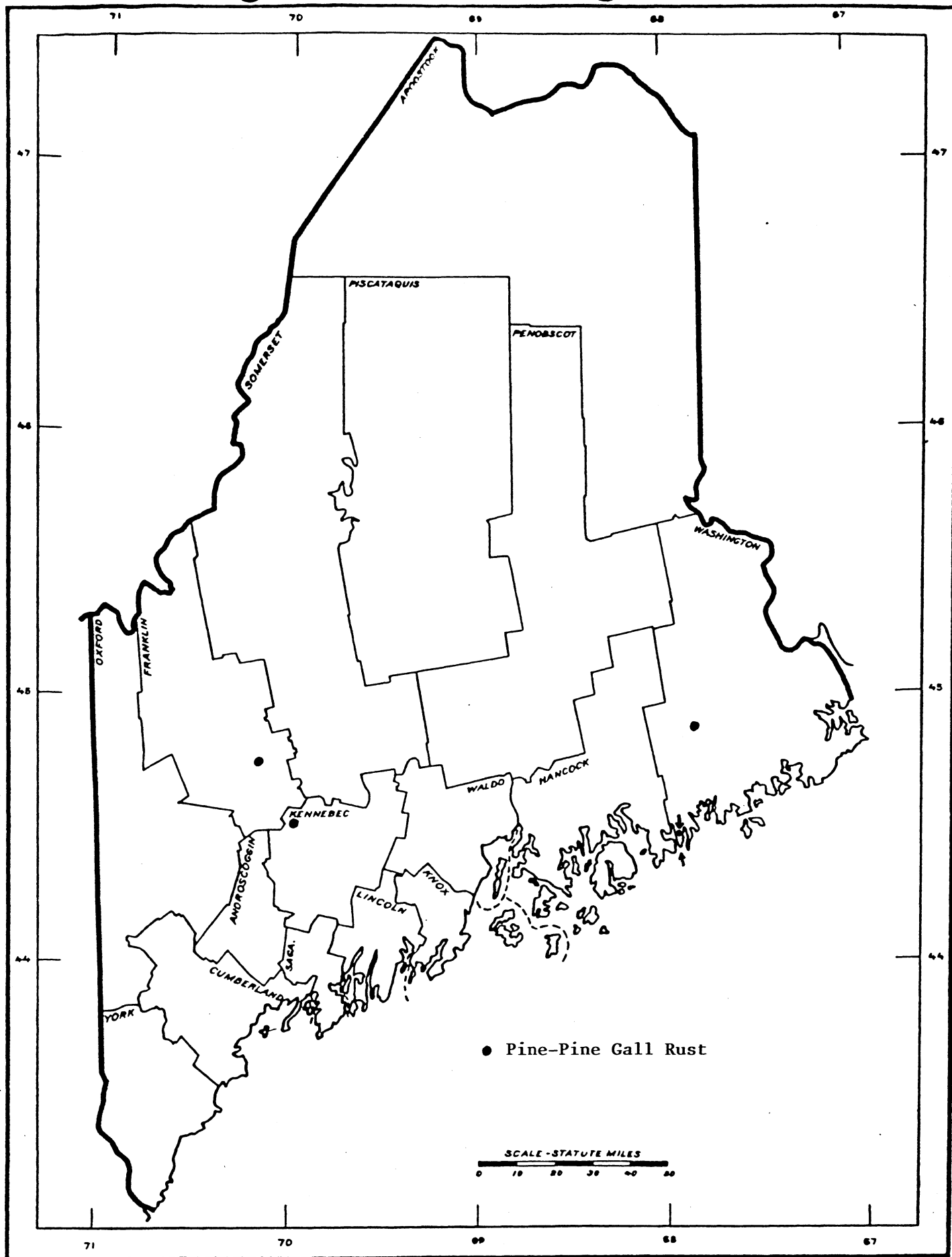
LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Generally light; some branch mortality, but a few seriously
infected Christmas trees were destroyed. Loss estimated to be about \$1,000.
Some mortality of young jack pine in Steuben.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Static

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS: The jack pine in Steuben has been infected for some time and galls are
very abundant on some trees, on both branches and main stems. This area
is beginning to undergo development stimulating more concern for the
aesthetic aspect of the problem.

MAINE



1989 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): Pinewood Nematode

(SPECIFIC NAME): Bursaphelenchus xylophilus

HOST: Confirmed in Maine from White Pine, Red Pine and Balsam Fir

PRESENT CONDITION: Total extent unknown at this time

AREA - TOTAL ACRES: Unknown at this time

LOCATION: Positive findings from Baldwin, Casco, Whitefield & Albion on White Pine. Medway & T11-R17 on Balsam Fir, and Fairfield on Red Pine, Others Below ***

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: None

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: No attributal losses to pinewood nematode.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND

EXPECTATIONS FOR NEXT YEAR: Survey procedures continue throughout the state from a variety of hosts. Approximately 30 sites were surveyed in 1989. So far 1 has been found infested. 8 other locations found late in 1989. (See List)

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS: Survey procedures are scheduled to be done again in 1990.

***= Additional positive locations received late in 1989 are as follows:

Waltham on White Pine

T8-R8 WELS on Balsam Fir

T15-R15 WELS on Balsam Fir

Palmyra on Balsam Fir

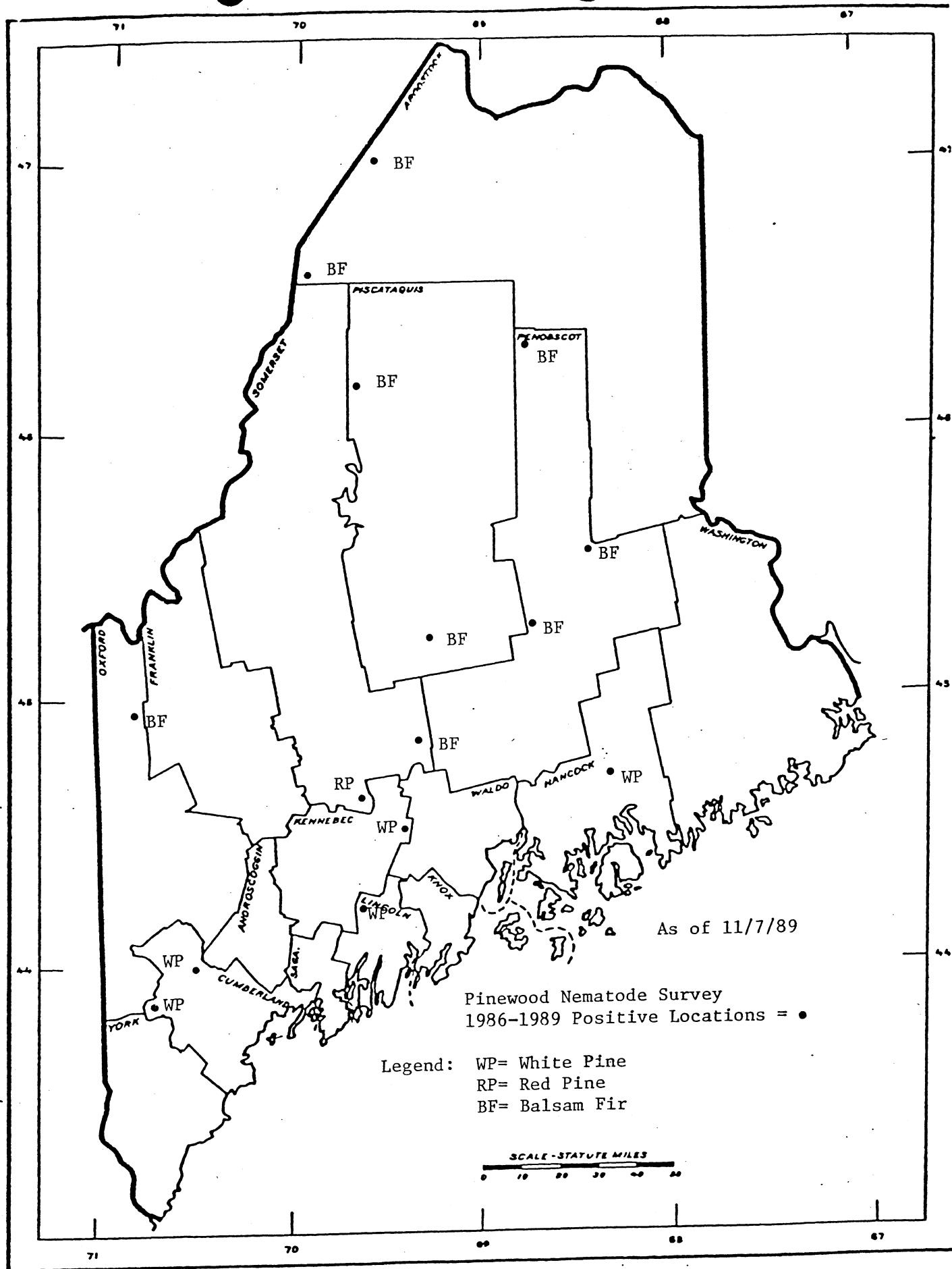
Guilford on Balsam Fir

T6-R15 WELS on Balsam Fir

Adamstown on Balsam Fir

Maxfield on Balsam Fir

MAINE



MAINE

PEST - (COMMON NAME): Scleroderris Canker
(SPECIFIC NAME): Ascocalyx abietina

HOST:

PRESENT CONDITION: Red Pine

AREA - TOTAL ACRES: 1

LOCATION: Eustis

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Scattered infections on trees
at a previously recorded site.

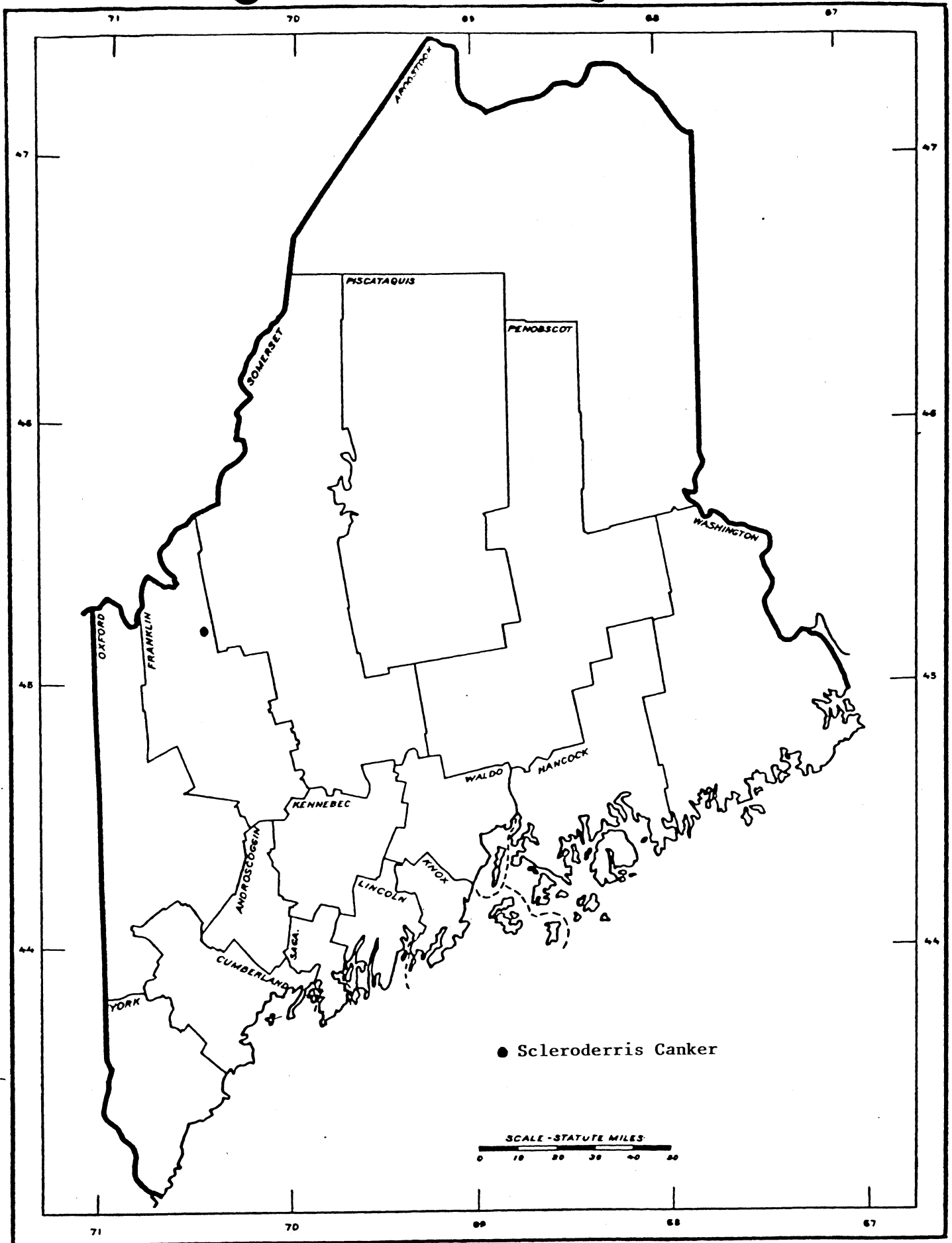
LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: No significant mortality

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Static; no new infection sites reported
this year.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: No control
projects in 1989

ADDITIONAL COMMENTS:

MAINE



MAINE

PEST - (COMMON NAME): Sirococcus Shoot Blight

(SPECIFIC NAME): Sirococcus conigenus

HOST: Red Pine, Blue Spruce

PRESENT CONDITION:

AREA - TOTAL ACRES: Statewide

LOCATION: Wild stands, plantations, and individual landscape trees affected statewide.

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR INFECTION; DEFINE CLASSES: One plantation (about 10 acres) is about to be totally lost. Other areas less severely affected.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR \$ ESTIMATES: Not quantified

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND EXPECTATIONS FOR NEXT YEAR: Static

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS:

MAINE

PEST - (COMMON NAME): Spruce Cone Rust

(SPECIFIC NAME): Chrysomyxa pirolata

HOST: Picea glauca

PRESENT CONDITION:

AREA - TOTAL ACRES: 0

LOCATION: Kingfield

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: None

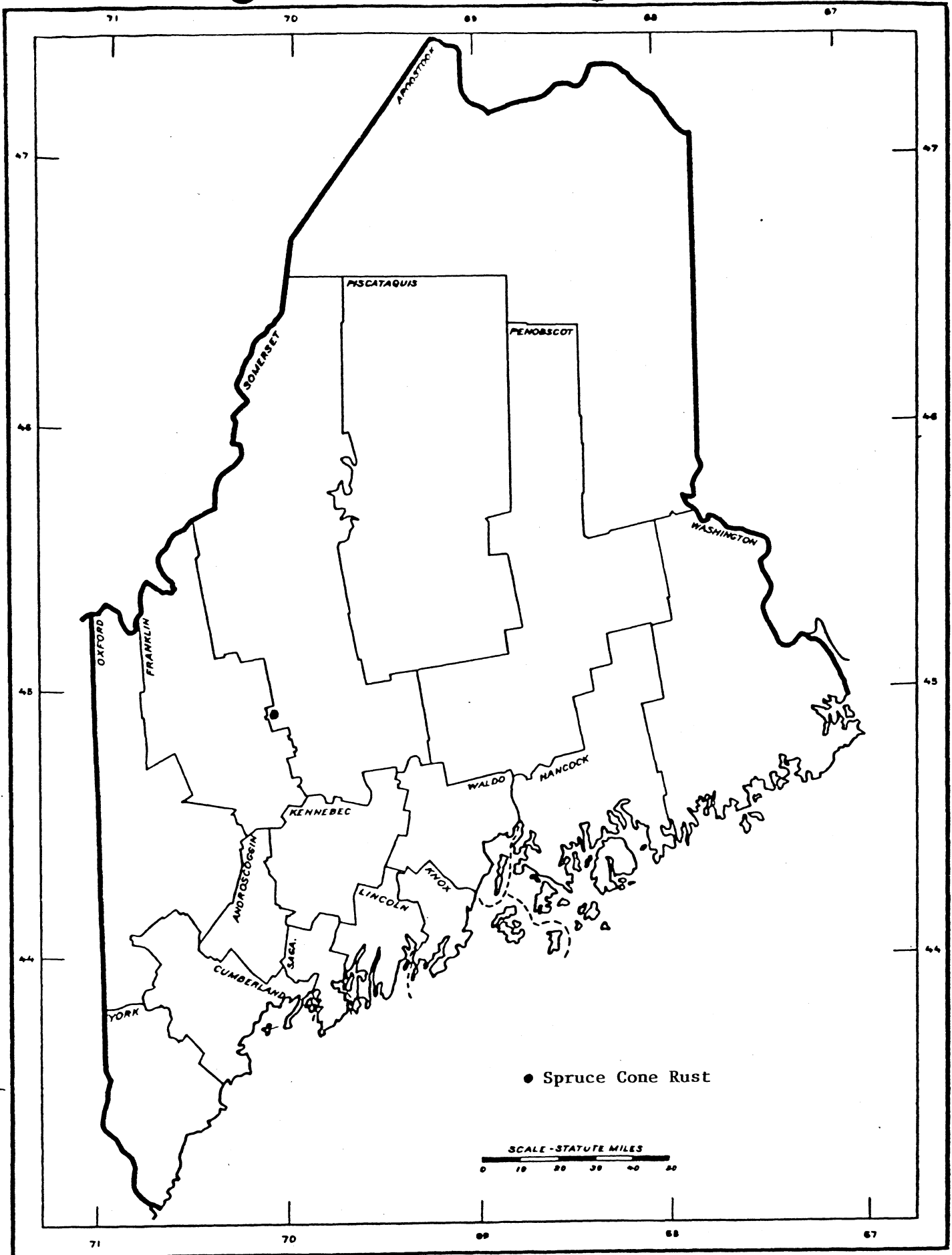
LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: None

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Down

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS: The area examined was heavily infected many years ago.
Despite the continued presence of the alternate host
plant (Pyrola sp.), no infection was found.

MAINE



1. PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): Stillwell's Syndrome

(SPECIFIC NAME): Associated with Armillaria mellea

HOST: Balsam Fir

PRESENT CONDITION:

AREA - TOTAL ACRES: Scattered throughout the resource

LOCATION: Northern and Central Maine

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: This problem continues to affect
only scattered trees.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Scattered mortality attributed to this problem can
be seen throughout northern and central portions of the State.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: See below

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS:

ADDITIONAL COMMENTS: The incidence of "red fir" in Maine's spruce-fir region was probably
the lowest in 1989 since the I&DM Division began studying the problem
in the mid 80's.

The future trend of this problem is not predictable but almost
certainly some level of loss will continue in 1990.

1969 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): Sugar Maple Decline Project

(SPECIFIC NAME):

HOST: Sugar Maple

PRESENT CONDITION:

AREA - TOTAL ACRES:

LOCATION: Western Portion of the State

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: 95% of the sugar maples in both sugar
bushes and natural stands have less than 10% crown dieback. The remaining
5% have crown dieback of 10% or more.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Not measureable at this point.

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Little change expected.

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS: The purpose of this project is to monitor the long term health condition
of sugar maples. Public concerns over the possible effects of acid
deposition and air pollution precipitated this study.

1967 PEST CONDITIONS REPORT WORK SHEET

MAINE

PEST - (COMMON NAME): • White Pine Blister Rust

(SPECIFIC NAME): Cronartium ribicola

HOST: E. White Pine

PRESENT CONDITION:

AREA - TOTAL ACRES: Statewide

LOCATION: Southern 1/2 of the State

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: Estimated 3.8% loss in control areas over a
10 year period; estimated 9.1% loss in noncontrol areas over a 10 year period.

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES: Annual loss about \$100,000

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Static

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: 56 acres concentrated ribes
Tordon RTU; 25,354 acres scattered ribes Tordon RTU - both totaling \$75,000.

ADDITIONAL COMMENTS:

MAINE

PEST - (COMMON NAME): Winter Injury to Forest Tree Planting Stock
(SPECIFIC NAME):

HOST: Many species of coniferous planting stock, especially spruce.

PRESENT CONDITION:

AREA - TOTAL ACRES: 40 (est.)

LOCATION: Fryeburg, Greenbush

SEVERITY - INCLUDE ACRES OF MODERATE AND HEAVY DEFOLIATION OR
INFECTION; DEFINE CLASSES: 10 - severe needle browning
30 - light to moderate browning

LOSSES - INCLUDE AREAS OF TREE MORTALITY; ALSO VOLUME AND/OR
\$ ESTIMATES:

TREND - CHANGES IN INCIDENCE AND SEVERITY OVER THE PAST FEW YEARS AND
EXPECTATIONS FOR NEXT YEAR: Will depend on snow cover

CONTROL PROJECTS - METHOD, MATERIAL, ACRES, COST, RESULTS: None

ADDITIONAL COMMENTS:

MAINE

